

# Who and what are carbon markets for? Politics and the development of climate policy

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Why have carbon markets been rapidly adopted as policy solutions to climate change in the last decade? Perhaps surprisingly, this question has attracted virtually no attention in the large literature on such markets. The standard arguments given for why carbon markets are good ways to respond to climate change do not explain why such markets have flourished as governance mechanisms in relation to climate. Carbon markets have spread and become taken-for-granted because of the potential they give to certain powerful actors (financiers, specifically) to create new cycles of investment, profits and growth. As a consequence, they make possible a political coalition combining financiers with environmentalists. This coalition has considerable potential to legitimize substantial cuts in carbon emissions in the face of continued opposition from other interests. It is the combination of these two elements – the promotion of specific growth sectors and the construction of a political coalition – that constitutes the principal political virtue of carbon markets. In order to demonstrate this claim, the history of emissions trading is traced and the implication of this analysis is explored for the further building of climate governance centred on carbon markets.

*Keywords:* business influence; carbon markets; finance; market formation; political economy; politics

Pourquoi les marchés du carbone ont-ils rapidement été adoptés cette décennie en tant que solutions politiques au changement climatique? Cette question, peut-être étonnamment, n'a reçu presque aucune attention dans la littérature – pourtant vaste – portant sur ces marchés. Les raisons habituelles données pour justifier que les marchés du carbone conviennent particulièrement à la lutte au changement climatique n'expliquent pas pourquoi ces marchés se sont épanouis en tant que mécanismes de gouvernance face au climat. Les marchés de carbone se sont étendus et sont pris pour acquis en raison de leur potentiel à créer de nouveaux cycles d'investissement, de profits et de croissance pour les acteurs puissants (spécifiquement les financiers). Par conséquent, ils rendent possible une coalition politique alliant financiers et environnementalistes. Cette alliance a le pouvoir considérable de légitimer une baisse importante des émissions de carbone, face à une opposition continue de la part d'autres intérêts. C'est la combinaison de ces deux éléments – la promotion de secteurs de croissances particuliers et la formation de l'alliance politique – qui confère aux marchés du carbone leur vertu politique. Pour démontrer cette revendication, l'évolution de l'échange des quotas d'émissions est retracée et la portée de cette analyse est explorée dans le sens d'un façonnage continu d'une gouvernance climatique centrée sur les marchés du carbone.

*Mots clés :* économie politique; finance; formation du marché; influence du secteur financier; marchés du carbone; politique

## 1. Introduction

Carbon markets have rapidly become widely regarded as an integral, if not most important, element in climate change policies. Emissions trading (ET) systems are currently in development or have been at some point operational in 33 locations (Betsill and Hoffmann, 2011).<sup>1</sup> However, although there is an enormous amount of literature on both cap-and-trade systems and baseline and credit systems, there has in fact been very little by way of a sustained attempt to explain why it is that carbon markets have spread so rapidly. A basic assumption of this article, and the research underpinning it, is that it is

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important to understand why carbon markets have become so popular. The rapid spread of a novel policy instrument, especially one with doubtful legitimacy among broad swathes of societies (see Paterson, 2010), is in itself important to explain; however, the reasons why carbon markets have become dominant are also significant in debates about how they might be designed.

The second point of departure of this article is that the standard rationale for carbon markets does not provide a useful explanation for why such markets have spread so rapidly. Rather, the enormous literature on such markets offers a normative argument for why such a response to climate change is a good thing, combined with technical analyses of the design and governance of markets, the legal and jurisdictional issues associated with them, how to make them environmentally effective, and the questions of justice and equity associated with them. The economic arguments to do with equalizing marginal abatement costs, reducing overall abatement costs and so on are (reasonably enough) particularly dominant, but it is important to distinguish between a normative analysis of whether emission trading (ET) is a good means of pursuing carbon abatement effectively and an empirical analysis focusing on why ET has become an integral part of climate policy.<sup>2</sup>

Implicitly, the existing literature tends to assume one or more of three types of explanation for the success of carbon markets as a policy instrument. The first is a focus on the diplomatic bargain struck at Kyoto – that carbon markets became integral to that treaty because of brinkmanship by the US and the desire of other states to find an agreement that the US might be able to ratify (see e.g. Grubb et al., 1999, p. 87–96; Depledge, 1999).<sup>3</sup> The second is a focus on flexibility: the desire of many states, but especially those (the US and to a lesser extent, before Rio at least, Norway) with a perception of high emissions reductions costs, to have a means of meeting obligations by investing in emissions reductions abroad (Grubb et al., 1999, p. 97–102; Newell and Paterson, 2010, Ch.5). The third is a focus on efficiency: the desire among some actors to find responses that reduce emissions at the least overall cost and that equalize marginal abatement costs across all actors (Yamin and Depledge, 2004, p. 136; Aldy and Stavins, 2007, p. 7). These explanations give superficial answers, but addressing the question of why carbon markets have taken off is never the explicit focus of the analysis. A deeper investigation is justified to try to explain the adoption of carbon markets.

To answer this sort of question directly, a focus on the politics and political economy of carbon markets is necessary. There are two aspects to a political/political–economic answer to this question. First, carbon markets have become popular because they have enabled the formation of a ‘winning’ political coalition favouring GHG emissions reductions. Second, they have become popular because they have enabled businesses to imagine a cycle of investments, profits and growth centred on these markets that may help processes of decarbonization. These two aspects are of course closely intertwined. As the businesses that have become involved in carbon markets have realized the possibilities of growth associated with carbon markets or carbon finance, their interests have shifted them towards the decarbonization coalition.

One consequence of this claim is that the focus of the article is as much on the processes of coalition formation and market development, and the more conventional focus on the policy-making process becomes only one among a number of important processes. Thus, this article does not focus on the sorts of direct choices policy makers at different levels have faced for different policy instruments, including carbon taxes, emissions trading, and command and control. Apart from space restrictions, this would detract from the focus on the broader political–economic processes surrounding and shaping the policy process itself.

Finally, when thinking about the design of carbon markets (currently going on in a number of jurisdictions), it is useful to bear in mind the tensions inevitably raised through the dynamics of forming political coalitions. The key tension for policy makers lies between the need to create cycles of growth for particular sectors of the economy in order to sustain climate policy, and the pursuit of the

environmental integrity on which the stability of the political coalition that carbon markets have enabled depends. The focus on this question comes about because these are the key tensions within the coalition of forces that sustain carbon markets as climate policy.

## 2. Histories of the carbon market

The development of carbon markets can be usefully described as four distinct types of process. These operate broadly (but not exclusively) in chronological fashion, but they overlap significantly and are in effect additive. Each process develops on the back of the other, and does not replace it, but rather exists alongside it. For reasons of manageability, this section focuses specifically on the development of emissions trading. The offset markets created by the Clean Development Mechanism (CDM) have developed in ways that, while broadly consistent with the analysis developed here, nevertheless have their own specific dynamics.

### 2.1. Networking for emissions trading policy

The first process was the emergence of policy networks promoting emissions trading from the early 1990s onwards. Ideas about the desirability of emissions trading emerged and were then transmitted through and by these networks. The core ideas about the 'common sense' understandings of such market mechanisms as a means of responding to climate change (through notions of efficiency, flexibility, negotiability, the possibility of North–South bargains, in particular) were disseminated through these networks. In the 1990s, this network had five principal elements.

First, a group of economists, mostly from the UK and the US, started writing about emissions trading regarding climate change from 1990 onwards. Key members of this group included Michael Grubb, Tom Tietenberg, Robert Stavins, Scott Barrett, Richard Sandor and Michael Hoel. Grubb's article *The Greenhouse Effect: Negotiating Targets*, published in December 1989, was the first article published on this issue.<sup>4</sup> Over the next couple of years, this group produced a number of articles, and were organized as a network both informally and then through Frank Joshua at the United Nations Conference on Trade and Development (UNCTAD), who brought them together to produce a report for UNCTAD on emissions trading, published in time for the United Nations Conference on Environment and Development (UNCED) in 1992 (UNCTAD, 1992).

This network developed in three directions. First, in the context of international negotiations in the United Nations Framework Convention on Climate Change (UNFCCC) process, ideas about emissions trading were discussed during the mid-1990s primarily through the Annex I Expert Working Group in the UNFCCC process, a working group coordinated by the Organisation for Economic Co-operation and Development (OECD).

Second, the initial network spawned a UK network that became very active from around 1994 onwards.<sup>5</sup> It was organized through a number of informal networks, then under the auspices of the Advisory Council on Business and the Environment and the Confederation of British Industry (CBI), finally becoming the Emissions Trading Group. It drew in a range of actors, from the UK government (David Fisk, the UK Chief Scientist and head of the UK negotiating delegation for most of this period, was a member, as were other officials from the Department of Trade and Industry (DTI) and the Department of the Environment (DoE)) and especially from firms who would be regulated under an emissions trading scheme (ETS). Indeed this network was important in the way that it drew a wide range of industrial actors into the climate policy debate. This was the period, in the UK in particular, when firms that would be regulated under any measures to address climate change switched strategies from either active resistance or keeping their heads in the sand towards active engagement to produce policies

that least threatened their interests. In particular, firms were motivated to avoid the possibility of either a carbon tax or (worse, from their point of view) 'command and control' regulations; advocating ET was a way to present themselves as constructive while opposing a carbon tax vigorously.

The third outgrowth of the early network occurred in the US. This group was more informal, in part because there was no policy momentum inside the US for ambitious climate policy. However, it was highly influential in creating the knowledge base with which the US could argue forcefully in the UNFCCC process for ET. It contained members in the first network described above, and also actors who had experience of sulphur trading in the US.

The final network in the 1990s emerged rather later, in the immediate aftermath of Kyoto. In the European Commission, there was a rapid change of personnel, with the officials who had been highly skeptical about ET during the Kyoto negotiating process leaving and being replaced by a small group of economists who were much more in favour. Skjærseth and Wettestad (2008, p. 75) nicely call this group the 'Bureaucrats for Emissions Trading' group (BEST). Core members of BEST included Jos Delbeke, Peter Vis and Peter Zapfel. Skjærseth and Wettestad make a distinction between the Commission's civil servants and its consultants, but, as a network, core consultants such as Farhana Yamin, Jürgen Lefevere (who moved between the commission and think tanks)<sup>6</sup> or business lobbyists such as Nick Campbell of Elf Aquitaine (now Arkema) have also been important members of this network around BEST. The EU network quickly became the most dynamic and fast-moving network, developing the ETS from a position of EU skepticism towards emissions trading and to a finalized EU ETS system between 1998 and 2003 (Hovi et al., 2003; Skjærseth and Wettestad, 2008).

## 2.2. Striking diplomatic bargains

The second process consisted of the diplomatic bargains struck from the UNFCCC through to the Marrakech Accords. This process can explain how negotiators came in 1997 to agree to the three mechanisms in Kyoto, and can also explain in part why policy makers, business leaders and others believe the carbon market to be a 'good thing'. Combining these diplomatic bargains with the existence of the ET policy networks also helps explain why alternative market mechanisms were not seriously considered during this period. The UNFCCC negotiations had already in effect decided, following the practice in other international environmental agreements such as those for acid rain or ozone depletion, that international commitments would be focused on quantitative caps (rather than price incentives as with a carbon tax), which translate easily into an emissions trading system but not into international, or internationally harmonized, carbon taxes (for details of how these negotiations played out, favouring a 'quantity' over a 'price' approach, see Hourcade, 2002). However, in 1997, and for the next four years at least (until the signing of the Marrakech accords in 2001), it was not clear that the negotiators would agree to operational rules that would make the markets viable. It was also not clear during this time that an ETS system that involved financial market actors would be instituted (with the decisions on the EU ETS), and it only became clear noticeably later that the demand in carbon markets could plausibly affect carbon emissions. The EU linking directive of 2004, which linked the EU ETS and the CDM and joint implementation (JI) provisions in the Kyoto Protocol, created the demand for Certified Emissions Reductions (CERs) and caused it to expand way beyond its designers' original anticipation.

## 2.3. An explosion of enthusiasm

The third process, after network development and diplomatic negotiations, was the explosion of enthusiasm and activity around carbon markets. The key period was 1997–2003, when many actors

shifted considerably from skepticism (if not hostility) towards carbon markets to positions of cautious acceptance and increasing enthusiasm. This was the period when large parts of the infrastructure of the markets that were now operational (and the ones being developed) and the key actors in them were established. A number of such types of actors and processes can be outlined.

The first was the establishment of a number of firms engaged in carbon trading, many of which are now still important in carbon markets. Firms such as Ecoscurities (established 1997), Climate Care (established 1997) and FutureForests (established 1997, now the Carbon Neutral Company) were all created in this period. Second, a number of major banks, notably Barclays, Cantor Fitzgerald and others in 2000 (later joined by Dresdner Bank in 2005 and ABN AMRO in 2005)<sup>7</sup>, established carbon-trading offices. Others, somewhat later, bought up some of the early start-up companies (JP Morgan bought up Climate Care in 2008 and Ecoscurities in 2009).

The third process was the establishment of a variety of organizations supporting the carbon market. Key here was the International Emissions Trading Association (IETA, founded 1999) and Point Carbon (founded 2000). The former operates as a lobby group on behalf of firms regulated under ET systems and firms engaged in carbon trading. The latter operates as an information provider about the state of carbon markets. A little later (2001–2002), the Chicago Climate Exchange (CCX) was established, as the first exchange to enable commodity and futures markets to operate.

The fourth process was the organization of regular, ongoing sites of debate about the rationale, character, design and operation of carbon markets, through Carbon Finance conferences. These have since flourished into a range of such conferences, such as the three Carbon Expo conferences organized annually by IETA, the World Bank and Kölnmesse since 2004, Point Carbon's annual conference (since 2004), and so on.

Fifth is the ongoing development of governmental and intergovernmental activity. Important here is the dramatic switch in approach in the EU, with pronouncements by the European Commission in 1998 that it intended to develop an internal ETS as a means of meeting its own Kyoto commitment. Also important is the entrepreneurship of various members of the UNFCCC Secretariat in developing the Kyoto mechanisms into a workable scheme (Depledge, 2005, Ch.6).

The developments during that period formed the basis for the complex carbon markets now in existence, worth (according to the World Bank) US\$144 billion in 2009 (Kosoy and Ambrosi, 2010, p. 1). The complexity has grown – on each of the dimensions above, new actors and features have been added – but the creation of a consensus around and broad enthusiasm for carbon markets was established during that period.

This explosion of interest in and enthusiasm for carbon markets intertwined with (i) the spread of the policy networks for emissions trading (and JI/CDM, although not described here) and (ii) the emerging 'common sense' of the policy rationale for ET (the assumptions about its efficiency, in particular), to create a 'virtuous cycle'. As more and more financial actors moved into the carbon business, regulators in countries thinking about ET systems started to gain confidence in the legitimacy and chances of success in implementing an ET scheme. Conversely, as it became clearer that Kyoto would come into force, an EU ETS would be established, and so on, more and more financial firms developed carbon market arms. A sort of 'virtuous cycle' of expectations developed during this period, which helped settle ET as the preferred policy approach, indeed causing it to be regarded as inexorable. Although 1997–2003 was the crucial period in this process, this virtuous cycle continued, until by around 2005 the momentum for carbon markets as a keystone of climate policy was unstoppable.<sup>8</sup> Expectations of ET systems becoming operational became more solid, more and more firms became established, and so on. This is the process that resulted in the establishment of what remains the core of the carbon market to date – the EU ETS, the CDM, and the linkage between the two.

## 2.4. Proliferating ET systems

The fourth process is the proliferation of carbon markets that started shortly after the coming into force of Kyoto, and accelerating after the establishment of the EU ETS and its linkage to the CDM.<sup>9</sup> Shortly after the start of the EU ETS, many jurisdictions made decisions to establish ET schemes as means to pursue their emissions reductions goals. New Zealand, Norway, Switzerland, Canada and Australia were most prominent in these groups, some having schemes already running, and others coming on stream in the next two to three years. Alongside this, in the US, in response to the Bush administration's rejection of Kyoto and general inaction on GHG emissions, many US states individually, but more importantly collectively, developed ET systems. The most advanced is the Regional Greenhouse Gas Initiative (RGGI), which started trading in September 2008. California has a plan, and two other regional schemes, the Western Climate Initiative (WCI) and Midwestern Regional GHG Reduction Accord, are reasonably advanced in planning ET systems. The latter two in fact straddle the US–Canada border, with British Columbia, Manitoba, Ontario and Québec being members of the WCI and Manitoba also having joined the Midwestern scheme. These regional initiatives have helped to build up pressure federally in the US, leading for a while to increasing success for ET proposals in Congress. Although the legislative process in the US became stalled during 2010, it is nevertheless the broad consensus that if Congress is ever able to pass legislation, it will have ET as one of its key elements.

## 3. Explaining the rapid spread of ET

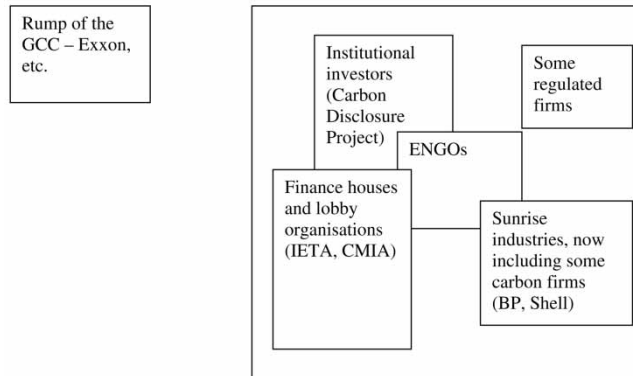
To return to the original question, 'What is the explanation for this history through which ET schemes have become more or less universally regarded in policy circles as the preferred response to climate change?'. The key period was 1997–2003, and the question to be asked is 'Why, in a period where the likely introduction of a large-scale carbon market was becoming more plausible, was there an explosion of enthusiasm for such markets?'. This explosion certainly cannot be explained by the process of diplomatic bargaining (which would be expected to make market actors nervous, given its various uncertainties), nor can it really be explained by arguments about flexibility or efficiency. However, this explosion of enthusiasm is key to understanding the 'taken-for-granted' character that carbon markets have taken on in the years since the signing of Kyoto. As suggested in the introduction, two features of this development are crucial.

### 3.1. Building a political coalition

First, ET has enabled the construction of a loose political coalition that has enabled policy makers to legitimize climate policy in general. The result of this process can be illustrated by looking at the broad shifts in the coalitions of forces in relation to climate change. Figure 1 is a crude representation of this shift.

While crude, this figure nevertheless represents a number of key shifts. First, the Global Climate Coalition (GCC) bloc, which had strongly and ruthlessly opposed action to reduce emissions (Gelbspan, 1997; Newell, 2000), has collapsed as an organization, and many of its former members have moved to a proaction position.

Second, the interest of finance as a sector in climate change has expanded considerably. Institutional investor interest is partly an outgrowth of early insurance interest due to their exposure to climate risks, but more important is the number of firms starting to think of the carbon intensity of firms they invest in as a potential business risk. The Carbon Disclosure Project is the principal expression of this sort of engagement. However, financiers are also now in this coalition because of their interest in carbon market development. The key point is that the anticipation of carbon markets created a shift in the balance of forces – financiers would not necessarily be in the pro-climate coalition without carbon

*1995 political coalitions**2008 political coalitions***FIGURE 1** Shifts in political coalitions

\*Note: 'Sunrise industries' is a term generally referring to those involved in renewable energy and/or energy efficiency and conservation.

markets as a policy response. There are now two (competing) lobby groups representing such firms, IETA and the Carbon Markets and Investors Association (CMIA).<sup>10</sup> These represent firms that now have a *vested* interest in pursuing aggressive targets to reduce emissions – the greater the cuts, the more trading there will be and the greater need firms will have both to hedge against volatility in carbon prices (thus stimulating derivative markets) and to have access to offset mechanisms like the CDM.

Third, there are strong links between environmental non-governmental organizations (NGOs) and various carbon market firms. These links mainly operate through a revolving door between carbon market/finance firms and environmental NGOs (ENGOS); many NGO members have moved into carbon market activity (e.g. Kate Hampton moving to Climate Change Capital from Friends of the Earth, or the trajectory of an organization such as Myclimate and its relationship to South Pole Carbon Management).<sup>11</sup> The boundary between these actors is not a clear, unambiguous one, as represented in the overlaps between these groups.

This coalition could be simply described in terms of what in political science is called pluralist perspective terms: that governments are affected by the different powers of different social and economic groups, and in this case, the balance of forces, as represented in the numbers of groups lobbying in particular ways, has shifted from opposition to action to limit emissions towards accommodation with climate change responses and even active lobbying for emissions reductions. However, this rather begs the question 'Why has this balance of forces shifted over time?'. Here, the key point is that financiers are only in the proaction coalition because of the existence of carbon markets. I therefore want to make a stronger claim as to how we should understand the importance of this shift, an explanation rooted in some basic claims in political economy.<sup>12</sup>

The first starting point for such an analysis is that the structure of capitalist society creates an imperative for economic growth. The way that labour is exploited combined with the dynamics of market

competition mean that while capitalism is enormously dynamic and productive, it is also highly unstable. It is subject to booms and slumps, and various periodic economic crises. Individual capitalists are forced to pursue constant growth in order not to go under. The state has evolved in large part as a set of institutions to manage this instability and pursue the conditions under which relatively smooth growth can occur.

This is one starting point for an explanation of the success of ET as a policy project. Given the logic of capitalist society, climate policy needs to deal with the question of economic growth. It is no surprise from this perspective that policy debates have focused very heavily on the question of the growth impacts of different levels of mitigation response and different types of policy instrument. Given that many models (but not all) suggest that there will be negative GDP impacts of GHG cuts, the dependence of capitalism on growth has produced recurrent crises for the political legitimacy of proposals to cut them. These legitimacy crises are exacerbated by the distribution of such costs – the benefits of GHG cuts (reduced climate change) are broad and diffuse, and the costs are often concentrated on particular actors. This is a classical collective action problem as analysed by Olson (1965; see also Oye and Maxwell, 1994).

Although growth has a quantitative dimension, it also has qualitative character. If measures can be identified that enable specific economic sectors, even while the projected overall GDP impacts remain negative, then those sectors may be able to help legitimize climate policy in the face of opposition from losing sectors. The success of ET lies in part in its capacity to identify such a sector – finance – that can grow precisely because of climate policy. Thus, in contrast to the situation identified by Olson (1965), it concentrates on the benefits of GHG regulation in a relatively small number of actors (Oye and Maxwell, 1994). The process described above from 1997 onwards is one of increasing recognition of this political advantage of ET.

However, it is also possible to use this framework to explain why the specific sectors that appear in the coalition schematically shown in the figure have gained from climate policy. The dynamism of capitalism also implies that the ways that growth can be pursued differ across time and space. In particular, different sectors of the economy have been politically dominant at different periods. A key shift from the post-World War II period to the current organization of the economy is frequently analysed as a shift from the dominance of manufacturing to a ‘renaissance’ of global finance. Since the crisis of the 1970s, there has been a progressive deregulation of finance, engendering an enormous expansion of financial markets worldwide and a growth in their complexity (Helleiner, 1994; Leyshon and Thrift, 1997). Financial actors have become structurally powerful in relation to states, through their capacity to move money in and out of countries rapidly and trigger crises in those countries, as evidenced most clearly in the crisis of the European Exchange Rate Mechanism (ERM) in the early 1990s and the East Asian crisis of 1997–1998. However, they have also become structurally powerful in relation to manufacturing, as can be seen in the shifts towards a focus on short-term share price movements in the dominance of the ‘shareholder value’ discourse among financiers, as well as in the way that governments manage currency fluctuations in ways that often privilege the interests of finance over those of manufacturing (most clearly in the UK and US).

Thus, it is not an accident then that the policy instrument chosen is one that is particularly beneficial to finance. This aspect is best seen through looking at the process of ET development in the UK, which was in effect the key pioneer state in the 1990s. It is interesting that there was (and remains) very little direct contact between the policy networks and the financiers who began to get enthusiastic for carbon markets. The UK policy network was dominated by those firms who would be regulated by ET schemes. There were some participants from Lloyds of London, reflecting the insurance company’s interest in climate change rather than carbon-trading opportunities,<sup>13</sup> but none really from firms that would end up carbon trading. In the EU process, the BEST group for the most part also consulted regulated



firms; there seems to have been little effort by financial firms to gain access to the European Commission or UK national regulators.<sup>14</sup> In all these networks, only Richard Sandor (active early on, and also the founder of the CCX) and John Palmisano (active early on while working for Enron, later as an independent consultant) were significant participants who came from the finance sector.<sup>15</sup> The 'virtuous cycle' described above can only be understood therefore through a notion of structural power of finance, not behavioural power.<sup>16</sup> No observable 'influence' of finance houses on the design of ET systems can be observed in this period.<sup>17</sup>

However, good evidence can be gleaned, in particular from the UK.<sup>18</sup> Although official discourse rarely makes this explicit, as it would have been too obvious and crude, it is nevertheless clear that one of the motivations for the UK to pursue ET aggressively from 1997 onwards was to enable the City of London to achieve a structural advantage in the emerging carbon markets. This is not a question of the design of the scheme favouring UK firms; indeed, the UK design for its pilot, which ran 2003–2005, was widely criticized, and the EU ETS broadly followed the Danish scheme. But early UK action in this area was seen to give UK city firms a means to 'learn by doing' about emissions markets, to gain experience on which they could build expertise and take a leading position.<sup>19</sup> The outcome is at least highly consistent with that aim; 59% of all trades in the global carbon market are organized through London (according to the World Bank; Capoor and Ambrosi, 2008, p. 23). This is also consistent with the more general thrust of UK economic strategy since at least the early 1990s – to devise policy to help London compete more ruthlessly with New York for the role as the dominant centre in global finance.

We also have a useful counterfactual in the design of the Alberta offset market on which the current proposed Canadian federal system is based. This market has not taken off, in part because of its basis in an intensity-target, and in part because of the low price cap (CA \$15 per ton) that the technology fund provision creates. As a consequence, no regular trading has occurred and the interest of financiers in the system is minimal. A futures market for the proposed Canadian system was launched through the Montreal Climate Exchange (a subsidiary of the CCX), but the futures market has not taken off. The failure to design a system that interests financiers is part of the reason for the failure of carbon market policy to take off in Canada.<sup>20</sup>

### 3.2. Creating a cycle of growth

So, one of the reasons for the success of carbon markets as a policy project has been their ability to create a political coalition (however loose and informal) capable of legitimizing climate policy in the face of what remains significant opposition from both established economic and social interests threatened by GHG cuts. However, this capacity is based on the premise that carbon markets enable firms to imagine and create cycles of investments, profits and growth. Two broadly different means of making money in these markets can be identified.

On the one hand there are what financiers regard as fully commodified markets, resembling standard financial markets, with a widely used exchange platform (such as the European Climate Exchange or Bluenext), where prices can be easily compared, and different products can be rendered fungible. Financiers make money either through commission on the purchase and sale of emissions permits or credits, through arbitrage practices between the prices of different commodities in the market, or through the creation of a range of derivative products that enable other firms to hedge against price volatility.

The principal new commodities in these markets are the EU Allowance Unit (EAU) and the CER, the units of account for the EU ETS and the CDM, respectively. Emerging emissions trading systems are in the process of creating similar units (the RGGI and the New Zealand system already have them, and so on). All are designed to be fungible; the tCO<sub>2</sub>e is the general accounting unit operating across these

markets.<sup>21</sup> They have what are known in the markets as 'vintages', because each allowance covers emissions for a particular year, but it is possible to move allowances over time within a commitment period; this gives a number of different vintages that can be traded for one another. An EUA exists for 2008, a CER for 2011, and so on. There are also futures and options markets in each, so it is possible to trade in allowances before they formally exist, and to hedge against both the price volatility inherent in financial and commodity markets to do with price volatility, and the added regulatory risks specific to carbon markets (produced by uncertainties about allocation regimes, measurement questions and policy direction).

On the other hand, there are markets that are more oriented around mobilizing investment. The CDM is a market mechanism that is designed to generate investment in carbon abatement projects in developing countries. The exchange of CERs discussed above is referred to as the 'secondary CER market', that is, exchanges of CERs already created by CDM projects. However, the people selling here into that secondary market are project developers, who are using the income from CERs to make viable projects that might not, otherwise, come about. These firms are linking carbon markets to their broader investment strategies.

But the firms making money in carbon markets are not just the traders in the CER or EUA markets, or the project developers in the CDM. There are also (at least) consultants working on the Project Design Document (PDD), which has to be prepared to get approval from the CDM Executive Board consultants on the methodologies to be developed and applied in a project, brokers working simply to bring together project developers and purchasers of the CERs (or buyers and sellers of EUAs), firms working to validate the PDD for the CDM system and to verify the emissions reductions once the project is up and running, and lawyers drawing up the contracts to purchase the carbon allowances or credits or devise complex contracts for derivative products. All these actors have developed significant investment strategies around the carbon markets, and many of these players have developed broader investment strategies designed to take advantage of and promote low-carbon development.

Carbon markets have grown rapidly to the US\$144 billion figure mentioned at the beginning of this article. Given that a number of new ET systems are due to come on stream (in terms of demand for trading, the most important here is a US system), and many proposals for the post-Kyoto period include expanded carbon markets at the international level (e.g. sectoral or programmatic CDM), actors in this business anticipate such growth to continue for some time to come, even in the face of a general financial crisis such as the one currently being experienced. The overall point is that this anticipation of growth is highly important to sustaining support for carbon markets and, by extension, for climate policy development *per se*.

#### 4. Conclusions

Carbon markets have been tremendously successful as a policy instrument, but not principally for the reasons assumed by their promoters. They have been politically useful in the response to climate change not because they are an efficient response, enabling the pursuit of emissions reductions at least cost (that may or may not be the case), but because they have enabled a particular cycle of investment and growth to take place, and thus the construction of a coalition of political forces, some of whom are direct beneficiaries from that cycle of growth. This has significant implications for how we think about the design of carbon markets as they develop further.

In terms of the design of carbon markets, the principal consequence for policy makers is to consider how carbon markets are constructed as a balancing act between the various elements in the loose coalition outlined above. Three sorts of tension within the coalition are worth stressing here.

The first is tension over the stringency of targets to be pursued. On the one hand, financiers, the sunrise industries and ENGOs favour stringent targets (often advocating the pursuit of specific limits, such as 2°C or 450 ppm, or even 350 or 400 ppm, targets). ENGOs do this for fairly obvious environmental reasons, and sunrise industries will benefit from more rapid uptake of renewables and energy efficiency technologies. However, financiers at times suggest that more stringent targets mean a higher carbon price, and one that is steadily rising, which will create more trading both directly on spot markets but also in derivative markets, as regulated firms seek to hedge against the risks produced by rising carbon market prices.<sup>22</sup> In allowance markets, this group tends also to favour 100% auctioning of allowances. On the other hand, regulated firms, while having internalized an assumption that emissions trading suits their interest better than either carbon taxes or direct regulations ('command-and-control'), nevertheless prefer relatively weak targets in order to enable them to manage a transition to decarbonization more slowly. They also tend to prefer grandfathering to auctioning in allowance markets (especially those firms highly exposed to international competition and that cannot thus pass costs onto consumers). The institutional investors have ambiguous interests, depending for short-term investment success on the viability of regulated firms' market performance, but also worrying more long-term about exposure to CO<sub>2</sub>-intensive industries.

A second tension arises over 'environmental integrity'. There are two questions here in the design of carbon markets: how should the 'additionality' of offset projects be assessed? And how much access should firms regulated in allowance markets have to offset markets? Here, ENGOs and sunrise industries favour stringent rules on additionality in offset markets (and exclusion of certain types of project that are regarded by ENGOs as particularly problematic, in particular those in forestry; see Bäckstrand and Lövbrand, 2006) and fairly sharp limits to access to offset markets. It is worth noting here that many ENGOs are playing a sort of legitimacy game with their members, because this is the point at which most skepticism about the desirability of carbon markets *per se* has been expressed. Most financiers and regulated firms favour easy access to offset markets, and have been at the forefront of lobbying of the CDM to 'streamline' its approval processes. For the latter this works as a 'cost containment' strategy, and for the former it is because they are making money through the offset markets themselves. There are some traders who have expressed opinions opposing easy access to offset markets; to the extent that such easy access reduces carbon prices overall, it might limit the necessity of hedging strategies by regulated firms (a source of profits for carbon traders).<sup>23</sup>

The third tension is over questions of linkage between different carbon markets. This is a less sharp conflict perhaps, but there is a general conflict between those favouring a globalized carbon market (i.e. one based on globally agreed rules and infrastructures), and those who prefer national- or regional-level markets that then link up in a more *ad hoc* manner. Financiers, institutional investors, regulated firms and sunrise industries all favour a 'globalized' market, as it maximizes the possibilities both for international investment and for arbitrage between different carbon market 'asset classes'. ENGOs tend to be more skeptical, as such a globalized market might take incentives away from a transformation of economies in the West (see Sandbag, 2009). There are also some nationalist blocs that oppose a globalized market; this can be seen most notably in the 'made in Canada' rhetoric adopted by the Stephen Harper government that came to power in 2006, which signified a rejection of all three of the Kyoto flexibility mechanisms on the grounds that it would produce transfers of resources from Canada to other countries. Other criticisms of the Kyoto mechanisms reflect this opposition to a globalized market (see e.g. Victor, 2007; Wara and Victor, 2008), as do some elements of the design of national- or regional-level markets, for example the current debate about border tax adjustments both in the EU and the US.

The politics of carbon markets thus entails managing these various tensions between different groups who make up the loose political coalition that supports carbon markets as the principal pillar

of climate policy. And guiding the resolution of these conflicts is the necessity of presenting climate policy as a means of promoting rather than restraining economic growth, which structurally limits some possible resolutions of these tensions.

At one level, policy makers know this – they are continually managing these tensions in their consultation exercises and in pondering what sorts of rules in the design of carbon markets they can sell politically. However, it is worth recognizing these tensions faced by policy makers at the level of how the development of carbon markets are analyzed as policy tools, as they determine the sorts of rules that are likely to be possible and which are likely to be more sustainable politically than others. At present, such debates remain focused on questions of efficiency and occasionally of distributive justice. However, if these arguments operate at the level of political rhetoric rather than as determinants of policy, it is worth taking seriously what carbon markets are for in thinking about their design.

The types of ‘lessons for policy makers’ that can be drawn from such an analysis are necessarily different from those generated by macro-economic modelling, for example. At the most general level, they entail the recognition that climate policy, whether through carbon markets or anything else, is a matter of coalition building, because there are still many actors who lose out from policies aimed at decarbonization. Policy makers would benefit from recognizing this and thinking more explicitly about the sorts of coalitions they are building. The precise nature of these coalitions will vary in different national and other contexts of course.

Two specific points about policy design can, however, be drawn out. First, many in the ENGO part of the coalition would like to shut down offset markets, arguing that they are prone to various methodological problems and, at their worst, enable regulated firms simply to avoid their emissions reductions commitments. However, the benefits of offset markets to the coalition overall are very considerable, bringing a broad range of investors, accountants and others into climate policy that would not otherwise be involved. Policymakers thus need to pay particular attention to the governance of such markets, to alleviate critiques from ENGOs (which climate deniers have used cynically to undermine confidence in climate policy *per se*). This entails resisting pressure from market actors (often organized through IETA) for simple ‘streamlining’ of CDM procedures, and thinking carefully about which types of current proposals for reform (programmatic, sectoral, standardized baselines) might minimize critiques by ENGOs while enhancing the possibilities for market development.

Second, policy makers need to design ET systems (and secondary offset markets) that generate the possibility of futures and options contracts. This is important for effectiveness as it enables the emergence of expectations about carbon prices and thus the price incentive to work properly. However, it is also key to getting finance interested. In the Albertan system (on which the current Canadian design is based) there is no clear scarcity of credits because of its intensity-based approach – firms do not know at the beginning of a commitment period how many permits they will need to hold at the end. The Albertan case, and the failure of the Canadian futures market, shows that this is unlikely to be a basis for a thriving carbon market. Also, in the Kerry-Lieberman bill (American Power Act, 2010), only regulated firms are allowed to engage in trading. This is clearly done in the context of the legitimacy crisis of Wall Street after the 2008–2009 financial crisis.<sup>24</sup> However, it will nevertheless make a futures market difficult to establish, so stable expectations about a carbon price will be less likely to emerge (and the price collars may enhance this effect). Moreover, and more importantly from the point of view of the analysis presented here, it excludes an important player (especially important in the US, as in the UK, given the role of finance in the US economy) from the coalition of those benefiting from climate policy. In a political context where opponents of climate policy are particularly strong, excluding potential allies is not likely to improve the chances of developing effective climate policy. However, the flip side of this argument is that in order to sustain climate policy, especially in a context of the legitimacy problems of the financial sector (that have spilled over into climate policy, as in the discourse of ‘subprime

carbon'), is that really strong market oversight will be crucial to ENGO and broader social support for carbon markets and climate policy more generally, a concern currently recognized, as in the French government's Prada report on carbon market oversight (Barb ris and Tignol, 2010).

The more general point is, nevertheless, that carbon markets have taken off in part because of the sort of political coalition favouring climate policy that they have enabled. The nature of the political coalition they throw up will create ongoing tensions for policy makers attempting to design policies that hold the coalition together. Should they fail, however, they risk undermining the political basis for continued climate policy, allowing interests that oppose emissions reductions to gain the upper hand.

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## Notes

1. These 34 sites include not only the EU ETS and Kyoto systems as well as other national systems currently planned, but also a whole range of subnational schemes such as the Regional Greenhouse Gas Initiative (RGGI) and the New South Wales system, and private sector schemes such as BP's internal system (no longer operational) and the Chicago Climate Exchange (CCX).
2. Critics of carbon markets (e.g. Bachram, 2004; Lohmann, 2005) assume that carbon markets are bad because they serve certain interests – notably financial ones, presumed by critics to be nefarious. However, although this implies an explanation for the growth of carbon markets, this is again a claim that is not accompanied by a serious empirical analysis to explain the existence of carbon markets.
3. This is also the answer routinely given in interviews I conducted with various participants during the autumn of 2007, as well as more informal conversations and direct observation over the last 15 years.
4. See Grubb (1989). For early publications by some of the others, see for example, Hoel (1991), Barrett (1992) and Dudek and Tietenberg (1992). See also their contributions to UNCTAD (1992).
5. This account draws in particular on interviews with Nicola Steen (October 2008) and Bill Kyte (December 2008), key initiators of this UK network. Steen at that time worked for the Association of Electricity Producers and Kyte at Powergen.
6. For examples of their publications on this topic, see Yamin (2008) or Lefevere (2008). For Zapfel, of the 'BEST' group, see Zapfel (2005).
7. I thank Ans Kolk for verifying this date.
8. There were of course many challenges to the specific elements in this process, especially the question of whether Kyoto would come into force. However, what became more and more settled during this period was the expectation that ET would be a cornerstone of climate policy, whatever the specific institutional context in which climate policy would be implemented.
9. The emergence of the voluntary carbon market is not included here. This emerged largely as a spin-off from companies, operations in the CDM.
10. IETA is in a contradictory situation in some contexts, trying to represent both regulated firms and market traders. The CMIA formed in 2007 in part because traders, especially in London, worried that when push

comes to shove, IETA represents the regulated firms more than traders. This conflict is particularly over what levels of abatement to push for, especially to date in the EU ETS. The CMIA more unambiguously lobbies for deep cuts in emissions. Nevertheless, in other contexts, for example over the design and operation of the CDM, the two sets of actors making up the IETA share an interest in maximum access to such flexibility mechanisms and quick, risk-free approval procedures for CDM projects.

11. Myclimate is an NGO developed by students and staff at ETH Zurich, a higher education institution. The organization had a distinctly activist culture, focusing on both carbon emissions mitigation and development goals. When the Gold Standard was developed by WWF, Myclimate tried to position itself as a 'high quality' offset originator by being involved only in projects that met Gold Standard criteria. The original target audience was individuals seeking to offset their own emissions. Over time, the members realized they were limited in their potential by their focus on individuals, but that to expand to dealing with corporate offsets would require a for-profit organization that the NGO structure could not deliver. The resulting company is South Pole Carbon Management, which similarly only originates Gold Standard projects but is focused on corporate offsets. The two are still housed in the same business park building in Zurich. *Source:* interviews with Myclimate and South Pole employees, November 2007.
12. The term 'political economy' is used here in rather classical terms – a collection of ideas coming from Smith, Ricardo, Marx, Polanyi and Schumpeter. This is still the usage of 'political economy' in disciplines such as sociology, geography and among many political scientists. It is a very different usage to that adopted by most economists and many political scientists in the US, who use the term 'political economy' to refer to the application of economic methods – rational actor models, in particular – to political processes and institutions. This is often known as 'public choice theory'.
13. Interview, Nicola Steen, London, October 2008.
14. Skjærseth and Wettestad (2008, p. 120–125), Jørgen Wettestad (personal communication); interviews with EU officials, Brussels, November 2007.
15. A number of others from these networks have moved into the carbon market later on. Nicola Steen of CantorCO<sub>2</sub>e or James Cameron of Climate Change Capital are good examples. The former worked with Michael Grubb at Chatham House, then moved to the Association of Electricity Producers and was a key member of the UK network. She joined CantorCO<sub>2</sub>e (originally called CO<sub>2</sub>e.com) in 2001. The latter started as a lawyer at FIELD, working as a delegate for AOSIS countries in the UN negotiations, then working for Baker & McKenzie and consulting on ET and climate change more generally, before founding Climate Change Capital and playing a leading role in developing the Carbon Disclosure Project.
16. The distinction between behavioural and structural power is a basic one in power analysis (e.g. Hay, 2002, Ch.5). The former refers to situations where A can get B to do what B would not otherwise do, while the latter refers to broader situations where A can create constraints that shape the choices that B makes. The nature of structural power is such that it is not usually amenable to direct observation but must be inferred through interpretive methodologies. This is what I try to do in this passage, to connect what we know about the overall power of finance in the global economy to the emergence of carbon markets.
17. Discussion of this is omitted for the moment, but the exception now is in the CDM, where financiers are very active in attempting to shape the rules for the CDM in their favour.
18. Clearly, the UK experience is particular to that country. It is peculiarly dominated by financial interests in comparison with other industrialized countries. It is, however, the country that has arguably been dominant in ET development since the early period of the EU ETS process. It is not claimed there are no other processes that may have operated in other countries (see Skjærseth and Wettestad, 2008, in particular, for discussion of these processes), but it is argued that the implicit realization of benefits to finance in the UK has been important in sustaining interest in carbon markets.
19. Interviews with current and former senior UK officials, London, September 2007.
20. There is little academic research yet on the Alberta system. See, for example, Pembina Institute (2009) for a critical analysis, although it does not make the point made here.
21. The exceptions are in the Canadian system, which has no basic unit, but is rather based on an intensity-target given to firms, and RGGI, which is based on a short rather than a metric tonne. The post-Kyoto negotiations may change this situation considerably, with a greater diversity of basic units and therefore complex questions of commensurability between them.

22. It is too early to determine whether this claim is plausible. It is more obvious that traders benefit from price volatility, as this is what will create incentives for regulated firms to hedge against adverse price changes. However, traders do nevertheless make such claims.
23. Personal observation, IETA side events, COP 14 in Poznan, December 2008.
24. The summary states that the market design 'eliminates the possibility of market manipulation' (e.g. American Power Act, 2010, p. 2).

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